



Models U4, U7, U9 & U15



Owner's Manual

## Installation, Operation & Maintenance



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# TABLE OF CONTENTS

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<b>SAFETY WARNINGS.....</b>	<b>3</b>
<b>SAFETY INSTRUCTIONS .....</b>	<b>3</b>
<b>PRODUCT APPLICATION .....</b>	<b>4</b>
CONSTRUCTION .....	4
PRINCIPLE OF OPERATION .....	4
LIMITATION OF USE .....	4
WATER QUALITY .....	4
<b>UNPACKING.....</b>	<b>5</b>
<b>INSTALLATION .....</b>	<b>5</b>
UNIT PLACEMENT.....	5
DIMENSIONAL DATA .....	6
UNIT INSTALLATION .....	7-9
GROUNDING KIT INSTALLATION.....	10
<b>MAINTENANCE.....</b>	<b>10</b>
INSPECTION .....	10
QUARTZ SLEEVE CLEANING OR REPLACEMENT.....	11
REPLACEMENT OF BROKEN QUARTZ SLEEVE .....	12
LAMP REPLACEMENT.....	13
DISPOSAL OF MERCURY ADDED LAMP.....	13
<b>OPTIONAL ACCESSORIES .....</b>	<b>13</b>
<b>TROUBLESHOOTING .....</b>	<b>14</b>
<b>TECHNICAL SPECIFICATIONS.....</b>	<b>14</b>
<b>REPLACEMENT PARTS.....</b>	<b>15</b>
<b>USER ASSISTANCE .....</b>	<b>16</b>
<b>WARRANTY .....</b>	<b>16</b>
PATENT NOTICE.....	16

These instructions generally describe the installation, operation and maintenance of the **Ultimate™** line of water purifiers, Models U4, U7, U9 and U15. Questions that are not specifically answered by these instructions should be directed to the Factory.

Buyultraviolet.com takes all possible precautions when packaging equipment to prevent damage. Carefully inspect and report all damage upon receipt of product. Do not install damaged equipment.

Follow all instructions on all labels and tags. Carefully inspect all packing materials before discarding to prevent the loss of accessories, mounting hardware, spare parts or instructions.

The information and recommendations contained in this publication are based upon data collected by buyultraviolet and are believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. Specifications and information are subject to change without notice.



## SAFETY WARNINGS

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- All personnel should be alerted to the potential hazards indicated by the product safety labeling on this unit.
- The following conventions are used to indicate and classify precautions in this manual and on product safety labeling. Failure to observe precautions could result in injury to people or damage to property.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



This symbol/pictorial is used to identify an **ELECTRICAL SHOCK** or **ELECTROCUTION** hazard.

### ⚠ DANGER

Danger indicates an **IMMINENTLY** hazardous situation, which, if not avoided, **WILL** result in death or serious injury.

### ⚠ WARNING

Warning indicates a **POTENTIALLY** hazardous situation, which, if not avoided, **COULD** result in death or serious injury.

### ⚠ CAUTION

Caution indicates a **POTENTIALLY** hazardous situation, which, if not avoided, **MAY** result in minor or moderate injury.

### CAUTION

Caution used without the safety alert symbol indicates a potentially hazardous situation, which, if not avoided, may result in property damage.



This symbol/pictorial is used to identify an **ULTRAVIOLET LIGHT** hazard.



This symbol/pictorial is used to identify the need to wear approved ultraviolet resistant face shield.



This symbol/pictorial is used to identify the need to wear protective gloves.

- Product safety labels should be periodically inspected and cleaned, as necessary, to maintain good legibility. Always replace illegible safety labels. Contact factory to obtain replacement safety labels.

## SAFETY INSTRUCTIONS

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### ⚠ WARNING: To guard against injury, basic safety precautions should be observed, including the following:

1. Read and follow **ALL** safety instructions.
2. Do not use this water purifier for other than its intended purpose as described in this manual.
3. Do not alter design or construction.
4. **⚠ DANGER: To prevent the risk of severe or fatal electrical shock, special precautions must be taken since water is present near electrical equipment. Always disconnect power before performing any maintenance.**
5. **⚠ WARNING: Always depressurize unit before servicing.**
6. **⚠ WARNING: Avoid exposure to direct or strongly reflected germicidal ultraviolet rays. Germicidal ultraviolet rays are harmful to the eyes and skin.**
7. Intended for indoor use only. The water purifier should be protected from the elements and from temperatures below freezing.
8. Do not operate water purifier if lamp cable, lamp connection, power cord and/or plug are damaged, or if any other damage to the water purifier is visible or suspected.
9. Electrical power supplied, to the water purifier, **MUST** match power requirements listed on the water purifier.
10. **⚠ CAUTION: Do not operate without proper electrical ground.** (See “**Grounding Kit Installation**” on page10)
11. Do not exceed water purifier’s maximum rated flow capacity.
12. Do not exceed maximum operating pressure of 100 PSI.
13. **⚠ WARNING: Always disconnect power to the unit before performing any service or maintenance.**
14. Read and follow all notices and warnings on the water purifier.
15. **SAVE THESE INSTRUCTIONS.**

# **PRODUCT APPLICATION**

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## **CONSTRUCTION**

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- The water purifier is designed to mount vertically.
- The water purifier chamber is passivated and electropolished Stainless Steel Type 304.
- The water purifier has a flow control valve inserted in inlet fitting of the chamber.

## **PRINCIPLE OF OPERATION**

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The **Ultimate™** design has been carefully conceived to provide adequate germicidal dosage throughout the disinfection chamber. The dosage, as it applies to ultraviolet disinfection, is a function of time and the intensity of ultraviolet radiation to which the water is exposed. The exposure time, in seconds, is the total time it takes the water to flow through the disinfection chamber exposing it to the germicidal lamp. Exposure time is related to the flow rate; the higher the flow rate, the lower the exposure time or the lower the flow rate, the higher the exposure time. The ultraviolet intensity is the amount of energy, per unit time, emitted by the germicidal lamp. The Dosage is the product of ultraviolet intensity and the exposure time. The operation of the **Ultimate™** is as follows:

1. Water enters the purifier and flows into the annular space between the quartz sleeve and the chamber wall.
2. Suspended microorganisms are exposed to the ultraviolet rays emitted by the germicidal lamp.
3. The LED indicator light, located on the ballast, provides visual indication of germicidal lamp operation.
4. Water leaving the purifier is instantly ready for use, no further contact time is required.

## **LIMITATION OF USE**

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The water purifier is intended for the use with visually clear water, not colored, cloudy or turbid.

See “**Water Quality**” section below.

The water purifier is **NOT** intended for the treatment of water that has an obvious contamination or intentional source, such as raw sewage; nor is the unit intended to convert wastewater to microbiologically safe drinking water.

## **WATER QUALITY**

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Water quality plays a major role in the transmission of germicidal ultraviolet rays. It is recommended that the water does not exceed the following maximum concentration levels:

**Table 1 - Maximum Concentration Levels**

Turbidity:	5 NTU
Manganese:	0.05mg/l
Total Suspended Solids:	10 mg/l
pH:	6.5 - 9.5
Color:	None
Hardness:	6 GPG or 102.6 PPM
Iron:	0.3 mg/l

Effectively treating water with higher concentration levels than listed above can be accomplished, but may require added measures to improve water quality to treatable levels. If, for any reason, it is believed the ultraviolet transmission is not satisfactory, contact the factory.

# **UNPACKING**

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- Remove the **Ultimate™** Ultraviolet Water Purifier from its shipping carton.
- Atlantic Ultraviolet Corporation takes all possible precautions when packaging this unit to prevent damage. Carefully inspect the disinfection chamber, lamp cable, lamp connection, power cord and plug for damage, report all damage immediately. Do not assemble or operate if there is any damage, visible or suspected.
- Germicidal lamp is packed separate in a cardboard tube, to ensure maximum protection in shipping. Keep aside until ready for installation.
- Quartz Sleeve is packed separate in a cardboard tube, to ensure maximum protection in shipping. Keep aside until ready for installation.
- Carefully inspect all packing materials to prevent the loss of accessories, mounting hardware, spare parts or instructions.
- Do not discard packing materials until unit is assembled and check out is complete.

The **Ultimate™** Ultraviolet Water Purifier includes:

<ul style="list-style-type: none"><li>• 1 - Disinfection Chamber</li><li>• 1 - Germicidal Ultraviolet Lamp</li><li>• 1 - Ballast</li><li>• 1 - Quartz Sleeve</li><li>• 1 - O-Ring</li><li>• 1 - Teflon® Washer</li></ul>	<ul style="list-style-type: none"><li>• 1 - Static Gland Nut</li><li>• 2 - Mounting Brackets (Upper &amp; Lower)</li><li>• 1 - Bracket Nut</li><li>• 1 - Owner's Manual</li><li>• 1 - Grounding Kit</li></ul>
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# **INSTALLATION**

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## **UNIT PLACEMENT**

1. The water purifier is intended for indoor use only. The water purifier should be protected from the elements and from temperatures below freezing. The ambient temperature, in the area surrounding the water purifier, should be between 33° F and 100° F.
2. The water purifier must be connected to the cold water line only. Inlet water temperature should not exceed 100° F.
3. Electrical power supplied to the water purifier **MUST** match power requirements listed on the water purifier. Use of a voltage surge protector is recommended.
4. The water purifier should be located in a dry, well-lit area, which provides enough room to perform routine maintenance. The **Ultimate™** is designed to mount in a vertical position, with the gland end up. Unit must be mounted to a secure wall or structure using the brackets provided. It is not recommended to have the unit solely supported by the plumbing to the unit. (The quartz sleeve and lamp are removed from the gland end.) Allow a service area of at least one chamber length from the gland end, for replacement of the lamp or cleaning/replacing quartz sleeve, as well as a minimum of 6" on the opposite end of the water purifier. Refer to "Dimensional Data" Figure 1 and Table 2 on Page 6.
5. Choose a location for your **Ultimate™** unit that is isolated from vibration. Vibration will damage lamp and lead to premature system failure.
6. The water purifier should be located closest to the point of use. This reduces the chance of the purified water being re-contaminated by bacteria in the water distribution system after purification.
7. If your system is subject to water hammer conditions, it is recommended that you install a water hammer suppressor. Water hammer may cause damage to the o-ring seal.
8. **CAUTION:** As with any water handling device, the purifier should be located in an area where any possible condensation or leakage from the purifier, accessories and/or plumbing will not result in damage to the purifier or to the area surrounding the purifier. For added protection, it is recommended that a suitable drain pan be installed under the purifier. The drain pan must be plumbed to an adequate, free flowing drain to prevent water damage in the event of a leak. There are numerous leak detection/flood stop devices, available on the market today, designed to stop the flow of water, reducing the chance of water damage due to leakage. For more details regarding leak prevention and/or limiting damages due to leaks, please contact the factory.
9. Flow direction - water enters the unit through the lower fitting and exists through the upper fitting. The flow control is mounted in the lower (inlet) fitting.
10. It is recommended that a 5 micron sediment filter be installed, in line, prior to the water purifier. The sediment filter will stop or trap any particulates from entering the water purifier. Particulates may cause damage to the quartz sleeve as well as interfere with the purifier's ability to disinfect the water. The sediment filter may also help to reduce the amount of routine cleaning of the quartz sleeve.
11. Shut off valves and unions should be installed on both the inlet and outlet sides of the water purifier. The use of bypass valves is not recommended. The shut off valves allow the purifier to be isolated from the water supply, which is required when removing the quartz sleeve.

## DIMENSIONAL DATA

Figure 1 - Ultimate™ Dimensional Drawing

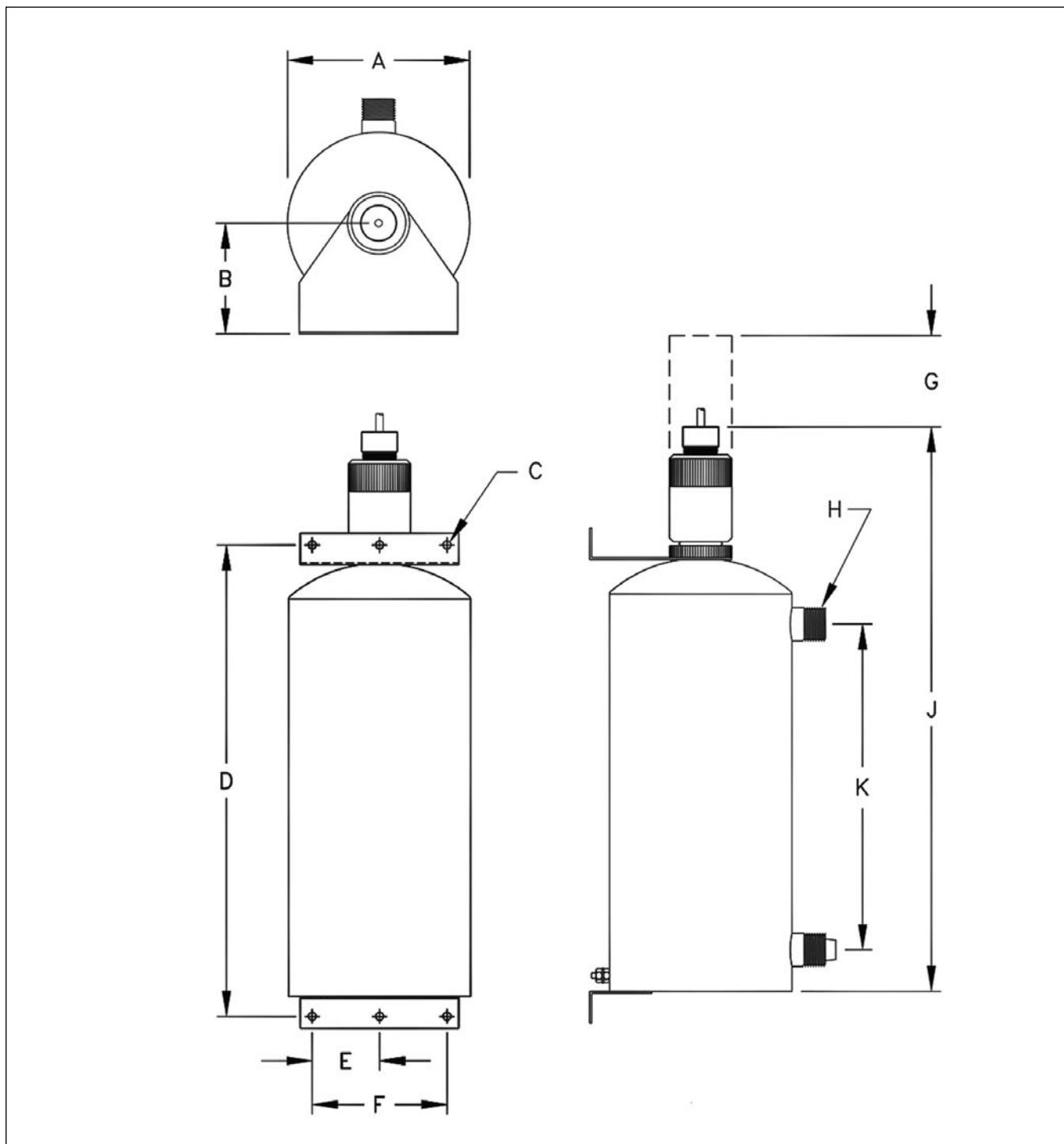
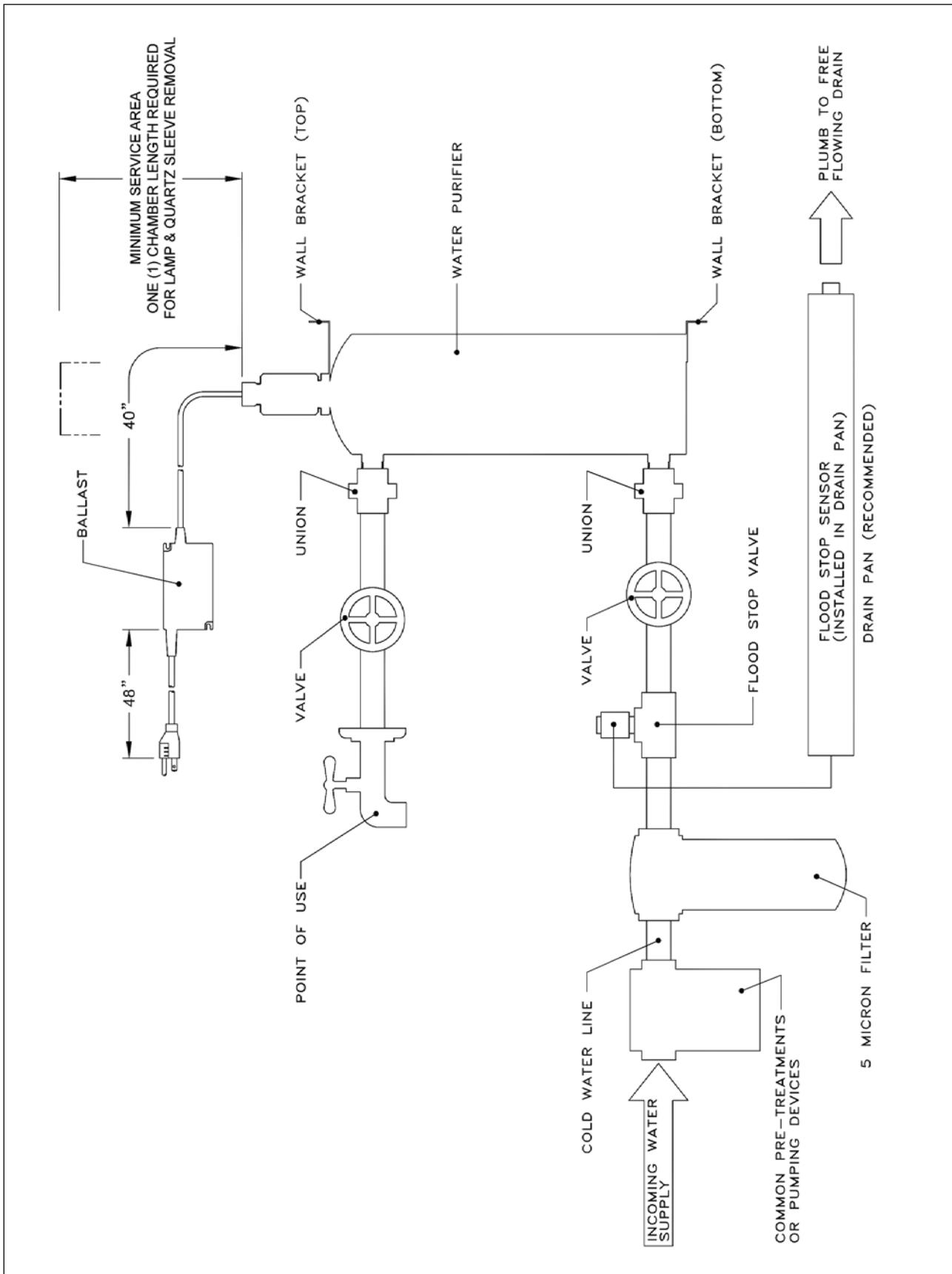


Table 2 - Ultimate™ Dimensional Data

Model:	A	B	C	D	E	F	G	H	J	K
U4/120	3-7/8" Dia.	2-7/8"	1/4" Dia.	14-11/16"	1-1/2"	3"	14-11/16"	3/4" MNPT	17-5/8"	10-3/4"
U7/120	5-3/4" Dia.	3-1/2"	1/4" Dia.	15-1/8"	2-1/8"	4-1/4"	14-3/4"	3/4" MNPT	17-7/8"	10-9/16"
U9/120	5-3/4" Dia.	3-1/2"	1/4" Dia.	19-3/8"	2-1/8"	4-1/4"	18-15/16"	3/4" MNPT	21-1/8"	14-17/32"
U15/120	5-3/4" Dia.	3-1/2"	1/4" Dia.	33-5/8"	2-1/8"	4-1/4"	33-3/8"	1" MNPT	36-1/2"	28-1/2"

## UNIT INSTALLATION

Figure 2 - Recommended Installation



## **UNIT INSTALLATION - STEPS 1 TO 10**

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**Step 1 - Install bottom bracket**



**Step 2A - Install top bracket and bracket nut**



**Step 2B - Place chamber & top bracket assembly onto the bottom bracket**



**Step 2C - Secure the top bracket to the mounting surface**



**Step 3A - Slowly slide quartz sleeve into the disinfection chamber**



**Step 3B - Carefully guide quartz sleeve until it seats into bottom center of water purifier**



**Step 4 - Place o-ring over end of quartz sleeve until seated against the static gland nipple**



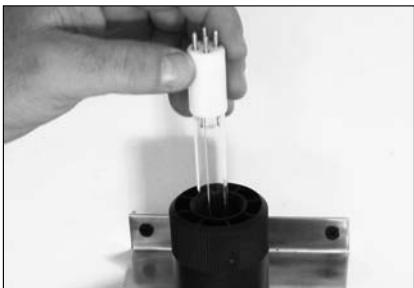
**Step 5 - Place Teflon® washer over quartz sleeve until it rests on o-ring**



**Step 6A - Install static gland nut over quartz sleeve and onto static gland nipple**



**Step 6B - Firmly tighten the static gland nut by hand**



**Step 7A - Insert the lamp part of the way into the disinfection chamber**



**Step 7B - Attach the lamp socket connector to the lamp**



**Step 8 - Lower, DO NOT DROP, ultraviolet lamp into quartz sleeve**



**Step 9 - Thread translucent sight port plug into static gland nut and hand tighten**



**Step 10 - Install Grounding Kit, Plumb unit, and plug ballast into an approved Ground Fault Circuit Interrupt (GFCI) receptacle**

## **UNIT INSTALLATION**

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**⚠ WARNING:** Always disconnect power to the unit, before performing any service or maintenance.

**⚠ CAUTION:** Lamp and quartz sleeve are easily damaged. Exercise care when removing or replacing.

**NOTE:** Screws are needed to secure water purifier to mounting surface and **ARE NOT** included. Please use screws appropriate for the mounting surface.

- Unpack the water disinfection chamber and components following the steps in the “**Unpacking**” section on Page 5.
- Be sure that you have read and followed all the instructions mentioned in the “**Unit Placement**” section on Page 5.
- For location recommendation to allow for adequate room for installation and maintenance of the **Ultimate™** Ultraviolet Water Purifier refer to “**Dimensional Data**” **Figure 1** and **Table 2** on Page 6.
- Use the “**Dimensional Data**” Figure 1 on Page 6, to mark the location of the bracket mounting pattern on the surface where the unit will be mounted. (Refer to Dimensions "D", "E", & "F".)

### **Installation Steps 1 to 10**

1. Install the bottom bracket to the mounting surface (with screws not included). The lip of the bracket should face down.
2. Place top bracket over the static gland nipple where the lip of the bracket faces up (refer to “**Dimensional Data**” Figure 1 on Page 6 ). Install bracket nut onto the static gland nipple so that it holds the bracket against the top of the chamber - hand tighten only. Place the chamber & top bracket assembly onto the bottom bracket. (Upward facing fingers on the lower bracket straddle the bottom rim of the chamber.) Align the top bracket so that it faces the mounting surface and is in line with the bottom bracket. Secure the top bracket to the mounting surface (with screws not included).
3. Slowly slide the quartz sleeve into the disinfection chamber, guiding it through the gland fitting until it seats into bottom center of water purifier. **NOTE:** Use care to keep the quartz sleeve parallel to the chamber. Angling the quartz sleeve in any direction could result in the breakage of the quartz sleeve.
4. Place the o-ring over the end of the quartz sleeve and push the o-ring down the quartz sleeve until it is seated against the static gland nipple.
5. Place the Teflon® washer over the quartz sleeve until it rests on the o-ring.
6. Install the static gland nut over the quartz sleeve and onto the static gland nipple. Be careful when installing static gland nut. Firmly tighten the static gland nut by hand. Hand tightening will provide the required seal. **DO NOT USE HAND TOOLS**, tightening with hand tools is likely to cause quartz sleeve to break.
7. Insert the lamp part of the way into the disinfection chamber, then attach the lamp socket connector to the lamp; make sure the connector is fully seated on the ultraviolet lamp. Carefully slide the lamp into the quartz sleeve.
8. Lower, **DO NOT DROP**, the ultraviolet lamp into the quartz sleeve so that the lamp is resting at the bottom of the quartz sleeve.
9. Thread the translucent sight port plug (connected to the lamp socket connector) into the static gland nut and hand tighten.
10. • Install Grounding Kit following the instructions in the “**Grounding Kit Installation**” on page 10.
  - Plumb unit following the recommended installation in “**Unit Installation**” **Figure 2** on page 7.
  - When all plumbing connections are complete, allow water to enter the water purifier at a low flow rate, until the purifier is pressurized. With the purifier pressurized, it should be checked for leaks. If the unit leaks, make sure that the static gland nut is firmly tightened. DO NOT use seal compounds to stop the leak. If the leak continues, close the inlet shut-off valve; release the pressure on the unit and drain. Inspect the quartz sleeve for damage. Be sure that the o-ring and Teflon® washer are on in the correct order on the quartz sleeve (not inside the static gland nut). Re-pressurize unit and check for leaks. Once it is determined that there are no leaks, the inlet valve can be full opened.
  - Once the plumbing hook ups are made, it is good practice to disinfect the “downstream” plumbing. This is done by introducing chlorine or other disinfectant solution directly into the purifier chamber, a 100 parts per million of chlorine is suggested. With the disinfectant solution in the purifier chamber, turn the ultraviolet purifier on. Open the “down-stream” outlet until a chlorine odor is noticed. Close the outlet and allow the disinfectant to remain in the plumbing for at least three (3) hours. Flush the plumbing with ultraviolet purified water; allow the water purifier to run for several minutes before use, this will allow the ultraviolet lamp to reach its full germicidal output.
  - Plug the ballast into an approved Ground Fault Circuit Interrupt (GFCI) receptacle. Where a 2-prong or unprotected 3-prong receptacle is encountered, it must be replaced by a properly grounded Ground Fault Circuit Interrupt (GFCI) receptacle. Installation must be in accordance with the National Electrical Code and any local codes and ordinances by a qualified electrician.

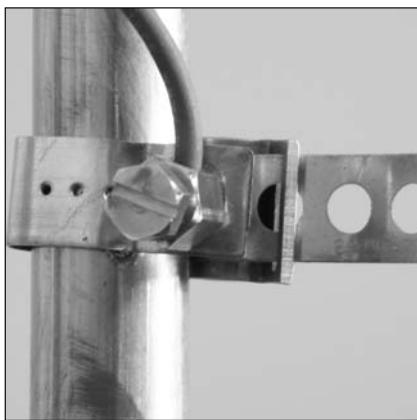
**⚠ WARNING:** Avoid exposure to direct or strongly reflected germicidal ultraviolet rays. Germicidal ultraviolet rays are harmful to the eyes and skin.

## **GROUNDING KIT INSTALLATION**

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**Photo 1** - Side angle view of copper pipe with ground placement



**Photo 2** - Front view of copper pipe with ground placement



**Photo 3** - Copper wire in contact with the screw and bolt on unit

**Purpose:** To permanently connect a ground wire from the water purifier chamber to a known ground.

Placement: Select a location that is visible as well as accessible. Connect the ground strap to a known ground or a water pipe that is metallic, with no intervening plastic fittings between it and the power ground. An electrician can measure the resistance between the water pipe and an electrical outlet ground to insure your ground selection is correct.

### **Installation:**

1. Wrap the copper strap tight around the pipe and line-up the strap end hole with another hole on the copper strap as well as a hole on the brass colored "S" clip.
2. Pull strap as tight as possible to insure contact between the strap and the pipe.
3. Insert the bolt threw both copper holes and into the threaded hole on the brass colored "S" clip.
4. Remove 5/8" of the ground wire insulation and insert into the bolt hole as shown and install the screw.
5. Ensure that the strap is securely fastened to the pipe and that the copper wire is in contact with the screw and bolt.

## **MAINTENANCE**

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The water purifier is designed to operate with a minimal amount of maintenance, providing the water quality does not exceed maximum concentration levels, see the "**Water Quality**" section on page 4.

Ordinary maintenance consists of;

- Lamp replacement is recommended every 10,000 hours of operation, approximately 12 months of continuous service.
- Cleaning of the quartz sleeve, when conditions warrant.
- Always disconnect the water supply and completely drain the water purifier if it will be subjected to temperatures below freezing, for extended periods of time.

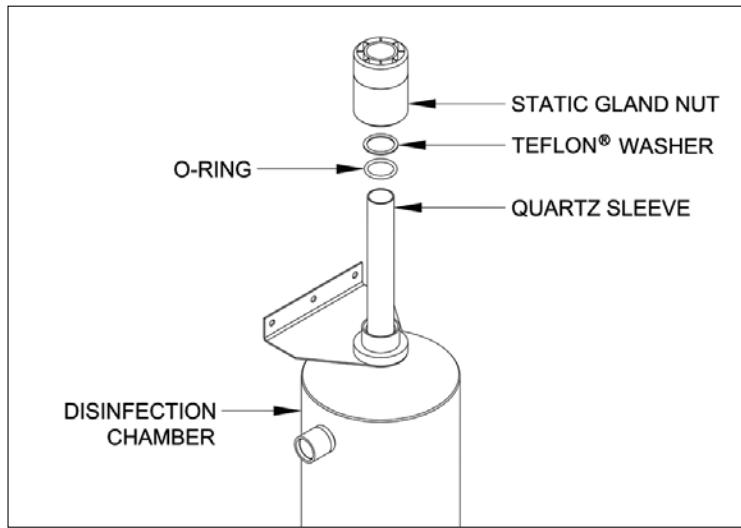
## **INSPECTION**

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1. Regularly inspect the water purifier to ensure that the germicidal lamp is still in operation.
  - **Ultimate™** Electronic Ballast includes an LED that provides visual indication (Green and Red LED Indicators) of the germicidal ultraviolet lamp operation and an Audio Alarm that alerts the user to lamp failure. The Electronic Ballast does not indicate the level of ultraviolet intensity or transmission through the water.
2. To ensure proper operation of the water purifier, regular biological testing should be performed on a schedule recommended by local public health authorities, or at minimum; at installation, quarterly for the first year of service and annually, at lamp replacement, for the life of the water purifier.

## **QUARTZ SLEEVE CLEANING OR REPLACEMENT**

**Figure 3 - Quartz Sleeve Exploded View**



**⚠ WARNING:** Always disconnect power to the unit, before performing any service or maintenance.

**⚠ CAUTION:** Lamp and quartz sleeve are easily damaged. Exercise care when removing or replacing.

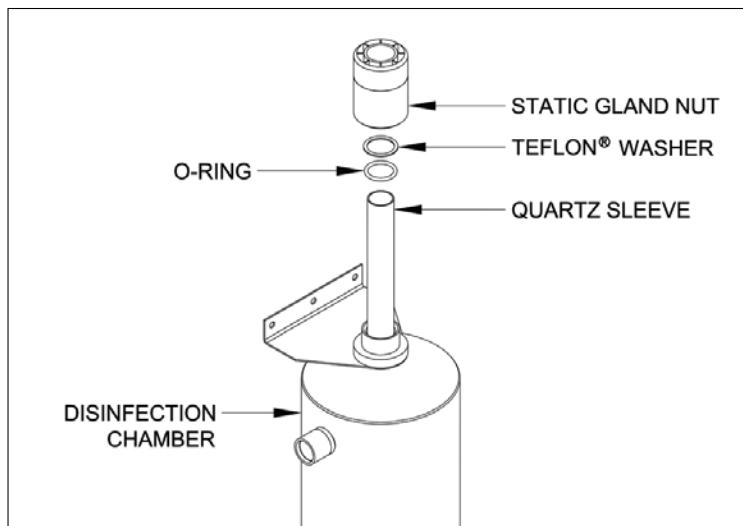
1. Disconnect power to water purifier.
2. Shut off water supply to water purifier via inlet and outlet shut off valve. Drain chamber.
3. Remove lamp, following the steps in “**Lamp Replacement**” section on page 13.
4. Unscrew static gland nut from end of the chamber. Avoid striking quartz sleeve with static gland nut.
5. Remove Teflon® washer and o-ring from end of quartz sleeve. Teflon® washer will sometimes remain within the static gland nut. If so, remove Teflon® washer from static gland nut before proceeding.
6. Carefully remove quartz sleeve from chamber.
7. Once the quartz sleeve is removed, moisten a clean, lint-free cloth with denatured alcohol and clean quartz.
8. Reassemble in reverse order. Be sure o-ring is placed on quartz sleeve before Teflon® washer.
9. Tighten static gland nut firmly by hand only, **DO NOT USE HAND TOOLS**. Tightening with hand tools is likely to cause quartz sleeve to break.
10. When all connections are complete allow water to enter the water purifier at a low flow rate until the purifier is pressurized. With the purifier pressurized, it should be checked for leaks.
11. If no leaks occur, install lamp, following the steps in “**Lamp Replacement**” section on page 13.

**⚠ WARNING:** Germicidal ultraviolet rays are harmful to eyes and skin. Do not restore power to water purifier until quartz sleeve, lamp and connections have been properly reinstalled.

## **REPLACEMENT OF BROKEN QUARTZ SLEEVE**

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**Figure 3 - Quartz Sleeve Exploded View**



**⚠ WARNING:** Always disconnect power to the unit, before performing any service or maintenance.



**⚠ CAUTION:** Broken Quartz is SHARP. It is recommended that protective goggles and gloves are worn when handling broken quartz sleeve.

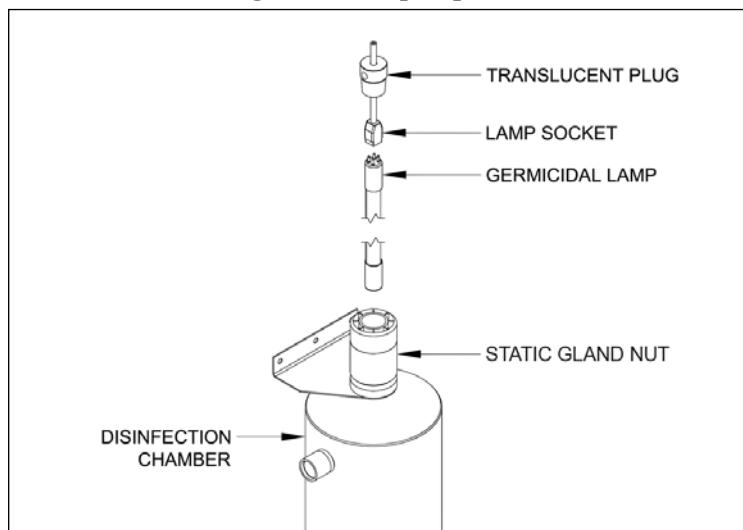
1. **Disconnect power to water purifier.**
2. Shut off water supply to water purifier via inlet and outlet shut off valve. Drain chamber.
3. Remove the lamp following the steps in “**Lamp Replacement**” section on page 13.
4. Unscrew static gland nut from end of the chamber. Avoid striking quartz sleeve with static gland nut.
5. Remove Teflon® washer and o-ring from end of quartz sleeve. Teflon® washer will sometimes remain within the static gland nut. If so, remove Teflon® washer from static gland nut before proceeding.
6. Carefully remove as much of the broken quartz sleeve as possible.
7. To remove fragments of quartz sleeving, hold the purifier vertically and shake. The quartz fragments will break and drop out of the purifier through the gland fitting. Flush water through chamber being careful to remove all quartz fragments from the interior of the chamber.
8. **Carefully discard all pieces of the broken quartz sleeve.**
9. Align the end of the quartz sleeve with the gland fitting of the chamber.
10. Carefully slide the quartz sleeve into the chamber, guiding it through the gland fitting until it seats into bottom center of water purifier. **NOTE:** Use care to keep the quartz sleeve parallel to the chamber, angling the quartz sleeve in any direction could result in the breakage of the quartz sleeve.
11. Re-install o-ring, Teflon® washer, and static gland nut. Be sure o-ring is placed on quartz sleeve before Teflon® washer. Tighten static gland nut firmly by hand only, **DO NOT USE HAND TOOLS**. Tightening with hand tools is likely to cause quartz sleeve to break.
12. When all connections are complete allow water to enter the water purifier at a low flow rate until the purifier is pressurized. With the purifier pressurized, it should be checked for leaks.
13. If no leaks occur, reinstall lamp, following the steps in “**Lamp Replacement**” section on page 13.

**⚠ WARNING:** Germicidal ultraviolet rays are harmful to eyes and skin. Do not restore power to water purifier until quartz sleeve, lamp and connections have been properly reinstalled.

## LAMP REPLACEMENT

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Figure 4 - Lamp Replacement



**⚠ WARNING:** Always disconnect power to the unit, before performing any service or maintenance.

**⚠ CAUTION:** Lamp and quartz sleeve are easily damaged. Exercise care when removing or replacing.

1. **Disconnect power to water purifier.**
2. Remove lamp from cardboard packing tube.
3. Shut off water supply to water purifier via inlet and outlet shut off valve.
4. Unscrew translucent plug from end of the chamber. Avoid striking quartz sleeve with static gland nut, **DO NOT USE HAND TOOLS.**
5. Carefully remove lamp from chamber.
6. While holding lamp end, disconnect lamp socket from the lamp.

**⚠ WARNING:** Germicidal ultraviolet rays are harmful to eyes and skin. Do not restore power to water purifier until quartz sleeve, lamp and connections have been properly reinstalled.

## DISPOSAL OF MERCURY ADDED LAMPS

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Germicidal ultraviolet lamps, like standard fluorescent lamps contain small amounts of mercury. Mercury added lamps should not be placed in the trash. Dispose of properly.

For further information regarding the disposal and recycling of lamps containing mercury, along with Federal and State requirements visit <http://www.lamprecycle.org>. Product Data Sheets for germicidal ultraviolet lamps can be found in the “PDF Library for **Ster-L-Ray®** Germicidal Ultraviolet Lamps” section of <http://www.ultraviolet.com>.

## OPTIONAL ACCESSORIES

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1. **Sentry™ Safety Sensor:** Pilot lamps provide constant visual monitoring of normal operation. In the event of ballast or lamp failure the safety sensor indicates an alarm condition. The safety sensor is capable of operating an optional audio alarm and/or solenoid valve.
2. **Time Delay Mechanism:** Provides a 2-minute warm up period during which the ultraviolet lamp achieves its full germicidal output before the water is allowed to flow through the water purifier. The time delay mechanism is used in conjunction with, and is electrically connected to the Solenoid Valve.
3. **Solenoid Valve:** Operated in conjunction with the Safety Sensor or Time Delay Mechanism, this valve prevents water flow through the water purifier when an abnormal condition is detected or in the event of power failure.
4. **Elapsed Time Indicator:** A non-resettable display of the water purifier operating hours. Useful for scheduling and recording maintenance and lamp replacement.

# TROUBLESHOOTING

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**⚠ WARNING:** Always disconnect power to the unit before performing any service or maintenance.

**IMPORTANT:** This unit is to be serviced **ONLY** by qualified, and appropriately licensed, personnel.

Table 3 - Troubleshooting

Problem	Possible Cause	Corrective Action
<b>Purifier not operating.</b>	No electrical power...	Verify that the purifier is connected to a live power source.
<b>Water leaking into/from purifier.</b>	Cracked or broken quartz sleeve...	Shut down purifier, drain, and replace quartz sleeve. See “Quartz Sleeve Cleaning or Replacement” section on page 11
	Quartz sleeve sealing o-ring worn, damaged...	Shut down purifier, drain, and remove static gland nut, replace sealing o-ring. See “Quartz Sleeve Cleaning or Replacement” section on page 11.
	Poor, or loose, connections or fittings...	Tighten suspect connection or fitting; or shut down purifier, drain, and remove fitting or connection. Clean threads; reapply thread sealing tape and reinstall.
<b>Poor purifier performance.</b>	Quartz sleeve fouled...	Clean quartz sleeve, see “Quartz Sleeve Cleaning or Replacement” section on page 11.
	Germicidal lamp output depreciating...	Replace lamp, as it nears its end of life ( <b>EOL</b> ). See “Lamp Replacement” section on page 13.
	Germicidal lamp not functioning...	Replace lamp. See “Lamp Replacement” section on page 13.
	Low input voltage...	Verify input voltage to purifier.
	Change in water quality...	Have water tested to confirm that it does not exceed maximum recommended concentration levels for use with this purifier.
<b>Translucent plug not glowing.</b>	Lamp not operating	Replace Lamp
	Ballast not operating	Replace ballast
	No electrical power	Verify that the purifier is connected to a live power source.

# TECHNICAL SPECIFICATIONS

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Table 4 - Technical Specifications

MODEL:	U4/120	U7/120	U9/120	U15/120
Flow Rate (Gallons Per Minute):	4	7	9	15
Inlet\Outlet Size:	3/4" M NPT	3/4" M NPT	3/4" M NPT	1" M NPT
Length:	4-15/16"	6-13 /16"	6-13 /16"	6-13 /16"
Width:	3-7/8"	5-3/4"	5-3/4"	5-3/4"
Height:	18-9/16"	18-7/8"	23-1/16"	37-1/2"
Chamber Diameter:	3-7/8"	5-3/4"	5-3/4"	5-3/4"
Shipping Weight:	9 Lbs	10 Lbs	11 Lbs	16 Lbs
Voltage/Hertz	120V 50/60Hz	120V 50/60Hz	120V 50/60Hz	120V 50/60Hz
Power Consumption:	20 Watts	20 Watts	24 Watts	45 Watts
Max Operating Pressure:	100 PSI	100 PSI	100 PSI	100 PSI
Ambient Temperature:	33° F - 100° F			

# REPLACEMENT PARTS

## Ultimate™ MODELS MODELS U4, U7, U9 AND U15

Figure 5 - Exploded View

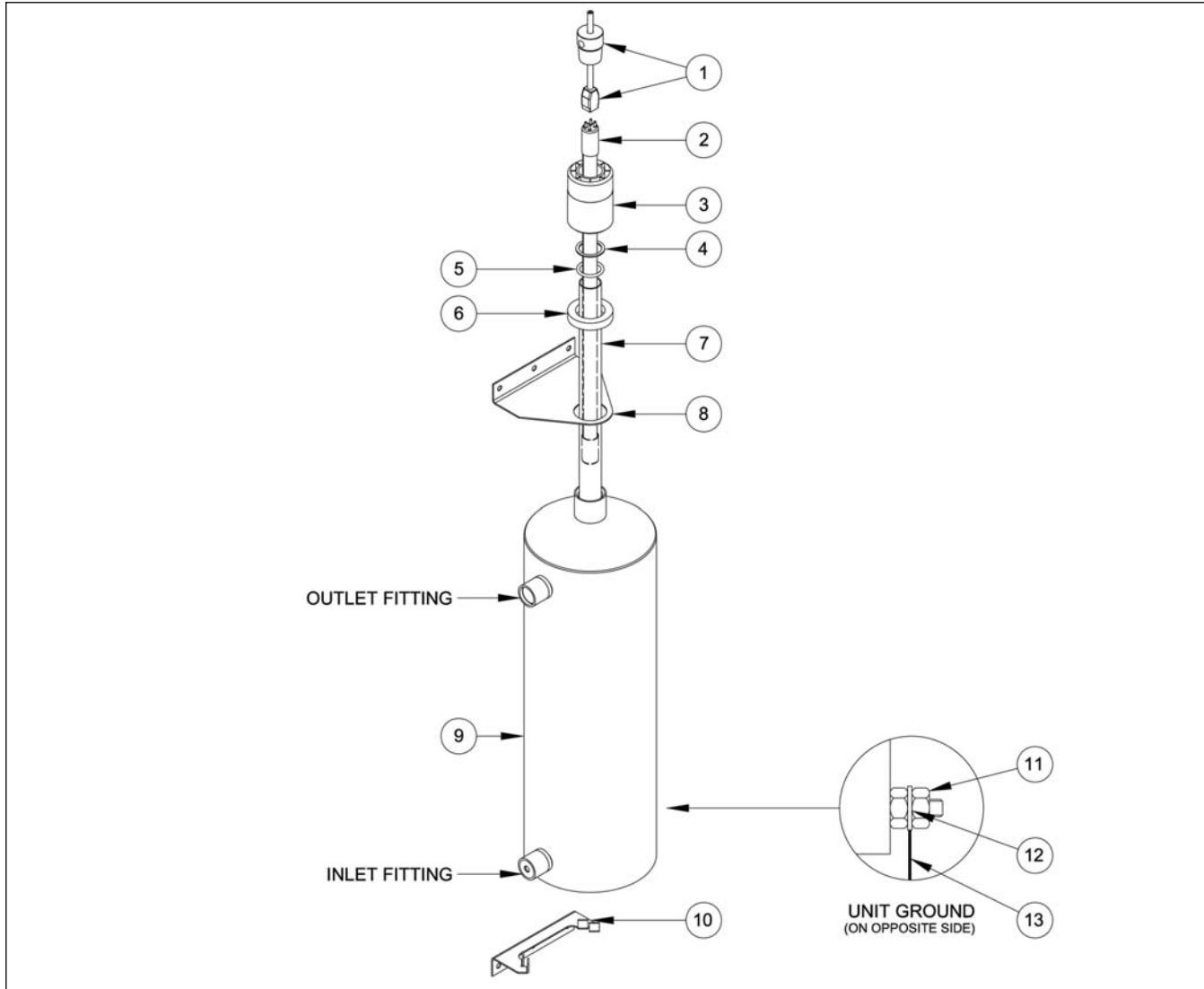


Table 4 - Replacement Parts

ITEM NO.	QTY	DESCRIPTION	MODEL			
			U4	U7	U9	U15
1	1	Ballast 120V Red/Green Alarm	10-0505A	10-0505A	10-0505A	10-0505A
2	1	Lamp 4 Pin Single End	05-0640A	05-0640A	05-0641A	05-0642A
3	1	Static Gland Nut	25-8105D	25-8105D	25-8105D	25-8105D
4	1	Teflon® Washer	00-0229A	00-0229A	00-0229A	00-0229A
5	1	O-ring Buna-N	00-8300A	00-8300A	00-8300A	00-8300A
6	1	Bracket Nut	25-8106B	25-8106B	25-8106B	25-8106B
7	1	Quartz Sleeve	15-8110A1	15-8110A2	15-8110A3	15-8110A4
8	1	Wall Bracket (Top)	25-8108B	25-8111B	25-8111B	25-8111B
9	1	Disinfection Chamber	25-8136A	25-8137A	25-8138A	25-8139A
10	1	Wall Bracket (Bottom)	25-8107A	25-8112A	25-8112A	25-8112A
11	2	Jam Nut 1/4-20"	50-1388	50-1388	50-1388	50-1388
12	1	1/4" Lock Washer	50-1330	50-1330	50-1330	50-1330
13	1	Grounding Kit *	35-8300A	35-8300A	35-8300A	35-8300A

\* Grounding Kit includes Item No. 11 & 12

## **USER ASSISTANCE**

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Atlantic Ultraviolet Corporation makes every effort to ensure that the **Ultimate™** Ultraviolet Water Purifiers are products of superior quality and workmanship. This manual describes the installation, operation and maintenance of the **Ultimate™** Ultraviolet Water Purifiers.

Please read and become familiar with the contents of this manual before installing or using this unit. If after reading the manual you still have questions, or concerns, regarding the installation or use of this unit, contact our offices, weekdays between 8:30 am and 5:00 pm Eastern time, at:

Atlantic Ultraviolet Corporation  
375 Marcus Boulevard  
Hauppauge, New York, 11788  
  
Tel: 631.273.0500  
Fax: 631.273.0771  
  
E-mail: [service@buyultraviolet.com](mailto:service@buyultraviolet.com)  
Website: [www.buyultraviolet.com](http://www.buyultraviolet.com)

Please REGISTER your product immediately - you can do this in a number of ways. Go online to [Ultraviolet.com](http://Ultraviolet.com) and on the bottom left of each page either click on "Fill out Warranty Reg. Form on-line!" complete and hit submit or click on "Download a PDF of the Warranty Reg. card" which you can print, fill out and mail in. If you prefer to register over the telephone please call 631-273-0500.

Atlantic Ultraviolet Corporation takes all possible precautions when packaging equipment to prevent damage. Carefully inspect and report all damage. **Do not** install damaged equipment. Follow all instructions on any labels or tags. Carefully inspect all packing materials before discarding to prevent the loss of accessories, mounting hardware, spare parts or instructions.

For your convenience, record the following information below. The model and serial number can be found on a label located on the **Ultimate™** Ultraviolet Water Purifier. Keep this manual, along with proof of purchase, handy when contacting our offices.

Purchased From:	Date:
Model:	Serial No.:

## **WARRANTY**

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We warrant that this product will be free from defects in material and workmanship for a period of one year from the date of shipment thereof or the product's total rated life, whichever first occurs. Within the warranty period we shall repair or replace such products, which are returned to us with shipping charges prepaid, and which are determined by us to be defective. This warranty will not apply to any product, which has been subjected to misuse, negligence, or accident; or misapplied; or modified; or repaired by unauthorized persons; or improperly installed.

The Buyer shall inspect the product promptly after receipt and shall notify us at our main office in writing of claims, including claims of breach of warranty, within thirty (30) days after the Buyer discovers or should have discovered the facts upon which the claim is based. Failure of the Buyer to give written notice of a claim within the time period shall be deemed to be a waiver of such claim.

The provisions of the above warranty are our sole obligation and exclude all other remedies or warranties, expressed or implied, including warranties of merchantability and fitness for a particular purpose, whether or not purposes or specifications are described herein. We further disclaim any responsibility whatsoever to the customer, or to any person, for injury to person, damage to, or loss of property or value caused by any product which has been subjected to misuse, negligence, accident; or modified or repaired by unauthorized persons; or improperly installed.

Under no circumstances shall the Company be liable for any incidental, consequential or special damages, losses or expenses arising from the contract for this product, or in connection with the use of, or inability to use, our product for any purpose whatsoever.

### **PATENT NOTICE**

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No attempt has been made to determine the patent status of applications illustrated or described in this publication. Inclusion in this publication of any design or method of use, which may be patented, is not to be construed as promoting or sanctioning unauthorized use.